

CLAIMS

1. A diaper product (1, 2, 6) comprising:
an absorbent product (11, 21, 61) for receiving excrement from a wearer; and
5 an IC tag (5a, 5b, 5e) having an IC chip and an antenna for radio communication connected to said IC chip, being attached to said absorbent product,
wherein a serial number for discriminating said absorbent product (11, 21, 61) from other absorbent products is stored in said IC chip and can be read out through said antenna.
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2. The diaper product (2) according to claim 1, wherein
said absorbent product (21) is a disposal diaper.
3. A diaper product (2, 6) comprising:
15 a disposal diaper (21);
an auxiliary absorbent pad (61) attached inside said disposal diaper (21), for receiving excrement from a wearer;
a first IC tag (5b) having a first IC chip and a first antenna for radio communication connected to said first IC chip, being attached to said disposal diaper; and
20 a second IC tag (5e) having a second IC chip and a second antenna for radio communication connected to said second IC chip, being attached to said auxiliary absorbent pad,
wherein a serial number for discriminating said disposal diaper (21) from other disposal diapers is stored in said first IC chip and can be read out through said first
25 antenna, and

a serial number for discriminating said auxiliary absorbent pad (61) from other auxiliary absorbent pads is stored in said second IC chip and can be read out through said second antenna.

5 4. A diaper product (3, 4) comprising:

a plurality of absorbent products (21);

a package (31, 41) for packaging said plurality of absorbent products (21); and

an IC tag (5c, 5d) having an IC chip and an antenna for radio communication connected to said IC chip, being attached to said package,

10 wherein a serial number for discriminating said package (31, 41) from other packages is stored in said IC chip and can be read out through said antenna.

5. A supply information management system for managing information on supply of diaper products, comprising:

15 a writing device (711) provided in a station (701 to 705) where for a diaper product (1 to 4, 6) provided with an IC tag (5) where information can be written to and read out from an IC chip through an antenna for radio communication, a predetermined process of at least one of manufacturing, inspecting, storing, shipping and selling on supply of said diaper product (1 to 4, 6) is performed, said writing device writing and
20 storing process information on said predetermined process to said IC chip of said diaper product (1 to 4, 6);

a reading device (711) for reading said process information together with a serial number stored in said IC chip in advance;

a product database storage part (724) for storing a product database (91) which is
25 a set of data elements each associating said serial number with said process information;

and

a product database updating part (723) for specifying a data element in said product database (91), which includes said serial number read out by said reading device (711), and adding said process information read out by said reading device (711) to said data element.

6. The supply information management system (710) according to claim 5, further comprising:

a confirming part (720) for confirming whether process information read out by said reading device (711) between a first process included in said predetermined process and a second process to be performed after said first process includes first process information which should be written to said IC chip by said writing device (711) in said first process; and

a transmitting part (721) for transmitting said serial number and said first process information which are read out by said reading device (711) to said product database updating part (723) when said confirming part (720) confirms that the process information includes said first process information.

7. The supply information management system (710) according to claim 5, further comprising:

a portable reading device (717) which is portable, for reading said serial number and said process information stored in said IC chip in a noncontact manner and outputting said serial number and said process information which are read out.

8. The supply information management system (710) according to claim 7,

wherein

said serial number and said process information which are read out by said reading device (711) and/or said portable reading device (717) are transmitted to said product database updating part (723) through internet (714).

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9. The supply information management system (710) according to claim 5,

wherein

said station includes at least one of a manufacturing station (701) for performing a process of manufacturing a diaper product (1 to 4, 6), an inspection station (702) for
10 performing a process of inspecting a diaper product (1 to 4, 6), a storage station (703) for performing a process of storing or retrieving a diaper product (1 to 4, 6), a shipping station (704) for performing a process of shipping a diaper product (1 to 4, 6) and a sales station (705) for performing a process of selling a diaper product (1 to 4, 6).

15 10. The supply information management system (710) according to claim 9,

wherein

said station includes said manufacturing station (701), and

said writing device (711) provided in said manufacturing station (701) writes at least one of a product model type indicating a kind of diaper product (1 to 4, 6) and its
20 manufacturing date and time to said IC chip of said diaper product (1 to 4, 6) as said process information.

11. The supply information management system (710) according to claim 9,

wherein

25 said station includes said inspection station (702), and

said writing device (711) provided in said inspection station (702) writes at least one of inspecting date and time of a diaper product (1 to 4, 6), an inspector name and an inspecting device which is used to said IC chip of said diaper product (1 to 4, 6) as said process information.

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12. The supply information management system (710) according to claim 9, wherein

said station includes said storage station (703), and

said writing device (711) provided in said storage station (703) writes at least one of storing date and time and retrieving date and time of a diaper product (1 to 4, 6) to said IC chip of said diaper product (1 to 4, 6) as said process information.

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13. The supply information management system (710) according to claim 9, wherein

said station includes said shipping station (704), and

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said writing device (711) provided in said shipping station (704) writes at least one of shipping date and time and a destination of a diaper product (1 to 4, 6) to said IC chip of said diaper product (1 to 4, 6) as said process information.

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14. The supply information management system (710) according to claim 9, wherein

said station includes said sales station (705), and

said writing device (711) provided in said sales station (705) writes selling date and time of a diaper product (1 to 4, 6) to said IC chip of said diaper product (1 to 4, 6) as said process information.

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15. A supply information management system (710a) for managing information on supply of diaper products, comprising:

5 a reading device (711a) for reading a serial number stored in an IC chip of a diaper product (1 to 4, 6) provided with an IC tag (5) where information can be read out from said IC chip through an antenna for radio communication;

a product database storage part (724) for storing a product database (91) which is a set of data elements each associating said serial number of said diaper product (1 to 4, 6) with process information on a predetermined process of at least one of manufacturing, inspecting, storing, shipping and selling on supply of said diaper product (1 to 4, 6),
10 which is performed for said diaper product (1 to 4, 6); and

a product database updating part (723) for, when one process for said diaper product (1 to 4, 6) is performed, specifying a data element in said product database (91), which includes a serial number read out by said reading device (711a), and adding said
15 process information on said process to said data element.

16. A usage information management system (810) for managing information on usage of diaper products, comprising:

a reading device (811) for reading a product model type indicating a kind of
20 diaper product (2, 6) and a serial number which are stored in advance in an IC chip of said diaper product (2, 6) provided with an IC tag (5) where information can be read out from said IC chip through an antenna for radio communication;

a stock database storage part (831) for storing a stock database (92) which is a set of data elements each associating said serial number of said diaper product (2, 6) with
25 said product model type and a state of usage of said diaper product (2, 6);

a stock database updating part (832) for, when one diaper product (2, 6) is put on a wearer of said diaper product (2, 6), specifying a data element in said stock database (92), which includes a serial number of said diaper product (2, 6), which is read out by said reading device (811), and updating a value of a data item in said data element which
5 indicates a state of usage from a value of "unused" to that of "used"; and

a stock number obtaining part (833) for, on each of a plurality of product model types for said diaper products (2, 6), specifying data elements in said stock database (92), each of which includes one product model type and a data item indicating said state of usage which has a value of "unused", and obtaining the number of said data elements as a
10 stock number for a diaper product corresponding to said product model type.

17. The usage information management system (810) according to claim 16, further comprising:

an order condition storage part (834) for storing a stock threshold value and the
15 number of reordered products corresponding to each of said plurality of product model types for said diaper product (2, 6) in advance; and

a reorder part (835) for, when a stock number for a diaper product (2, 6) corresponding to one product model type, which is obtained by said stock number obtaining part (833), falls short of a stock threshold value of said product model type,
20 transmitting said product model type and order information indicating the number of reordered products for said product model type to a selling agency for said diaper product (2, 6) through a communication network (911).

18. A usage information management system (810) for managing information on
25 usage of diaper products, comprising:

a first reading device (811) for reading a product model type indicating a kind of diaper product (2, 6), which is stored in advance in an IC chip of said diaper product (2, 6) provided with an IC tag (5) where information can be read out from said IC chip through an antenna for radio communication;

5 a second reading device (811) for reading a wearer identification number for discriminating one wearer of a diaper product (2, 6) from other wearers in a predetermined manner;

a wearer database storage part (840) for storing a wearer database (93) which is a set of data elements each associating said wearer identification number with an applicable
10 model type which is a product model type of a diaper product (2, 6) to be put on a wearer corresponding to said wearer identification number; and

a model type check part (852) for, when one diaper product (2, 6) is put on a wearer, specifying a data element in said wearer database (93), which includes a wearer identification number read out by said second reading device (811), and checking an
15 applicable model type in said data element with a product model type of said diaper product (2, 6) read out by said first reading device (811).

19. The usage information management system (810) according to claim 18, further comprising:

20 a wearer database updating part (851) for, when a change of applicable model type of a diaper product (2, 6) to be put on a wearer is needed, specifying a data element in said wearer database (93), which includes a wearer identification number read out by said second reading device (811), and updating a value of applicable model type in said data element to a product model type read out from a diaper product (2, 6) after changing
25 by said first reading device (811).

20. The usage information management system (810) according to claim 18,
wherein

a data element of said wearer database (93) includes latest wearing date and time
5 associated with said wearer identification number, and

when one diaper product (2, 6) is put on a wearer, said wearer database updating
part (851) specifies a data element in said wearer database (93), which includes a wearer
identification number read out by said second reading device (811), and updates latest
wearing date and time in said data element to date and time when said diaper product (2,
10 6) is put on.

21. The usage information management system (810) according to claim 20,
wherein

a data element of said wearer database (93) includes a change interval associated
15 with said wearer identification number,

said usage information management system (810) further comprising

a change-scheduled date and time output part (853) for outputting next
change-scheduled date and time for each wearer corresponding to said wearer
identification number on the basis of said wearer identification number, said latest
20 wearing date and time and said change interval.

22. The usage information management system (810) according to claim 21,
wherein

a data element of said wearer database (93) includes a plurality of latest wearing
25 dates and times and a plurality of change intervals corresponding to a plurality of product

model types of diaper products (2, 6) associated with said wearer identification number, and

5 said change-scheduled date and time output part (853) outputs a next change-scheduled date and time on the basis of latest wearing date and time and a change interval of a data element including a wearer identification number read out by said second reading device (811) and a product model type of a diaper product (2, 6) read out by said first reading device (811) when said diaper product (2, 6) is put on a wearer.

10 23. The usage information management system (810) according to claim 18, further comprising:

 a wearing date and time database storage part (861) for storing a wearing date and time database (94) which is a set of data elements each associating a product model type of a diaper product (2, 6) and a wearer identification number for a wearer of said diaper product (2, 6) with wearing date and time when said diaper product (2, 6) is put on;

15 a wearing date and time database updating part (862) for, when one diaper product (2, 6) is put on a wearer, adding a product model type of said diaper product (2, 6), which is read out by said first reading device (811), a wearer identification number read out by said second reading device (811) and wearing date and time of said diaper product (2, 6) to said wearing date and time database (94) as a new data element; and

20 a usage frequency obtaining part (863) for specifying a plurality of data elements having the same product model type and wearer identification number in said wearing date and time database (94) and obtaining a usage frequency indicating the number of used diaper products in a predetermined period on the basis of wearing dates and times of said plurality of data elements.

24. The usage information management system (810) according to claim 23,
wherein

a plurality of data elements in said wearing date and time database (94) include
product model types corresponding to disposal diapers (21) and other plurality of data
5 elements include product model types corresponding to auxiliary absorbent pads (61)
attached inside said disposal diapers (21).

25. The usage information management system (810) according to claim 18,
further comprising:

10 a price database storage part (871) for storing a price database (95) which is a set
of data elements each associating a product model type of a diaper product (2, 6) with its
price; and

a billing database storage part (872) for storing a billing database (96) which is a
set of data elements each associating said wearer identification number with a billing
15 amount for cost on usage of a diaper product (2, 6); and

a billing database updating part (873) for, when one diaper product (2, 6) is put
on a wearer, specifying a data element in said price database (95), which includes a
product model type of said diaper product (2, 6), which is read out by said first reading
device (811), to acquire a price of said diaper product (2, 6) and specifying a data element
20 in said billing database (96), which includes a wearer identification number read out by
said second reading device (811), and updating a billing amount of a data element
including said wearer identification number to a sum obtained by adding said price of said
diaper product (2, 6) to said billing amount.

25 26. The usage information management system (810) according to claim 18,

further comprising:

a price database storage part (871) for storing a price database (95) which is a set of data elements each associating a product model type of a diaper product (2, 6) with its price; and

5 a billing database storage part (872) for storing a billing database (96) which is a set of data elements each associating said wearer identification number with a self-pay ratio and a billing amount for cost on use of a diaper product (2, 6); and

a billing database updating part (873) for, when one diaper product (2, 6) is put on a wearer, specifying a data element in said price database (95), which includes a
 10 product model type of said diaper product (2, 6), which is read out by said first reading device (811), to acquire a price of said diaper product (2, 6) and specifying a data element in said billing database (96), which includes a wearer identification number read out by
 said second reading device (811) and updating a billing amount of a data element including said wearer identification number to a sum obtained by adding a product of said
 15 price of said diaper product (2, 6) and said self-pay ratio to said billing amount.

27. A diaper product management system (910) for managing information on diaper products, comprising:

a supply information management system (710a) managed on a supplier side,
 20 where diaper products (1 to 4, 6) are manufactured and sold, for managing information on supply of diaper products (1 to 4, 6); and

a usage information management system (810) managed on a consumer side, where diaper products (2, 6) are consumed and connected to said supply information management system (710a) through a communication network (911), for managing
 25 information on usage of diaper products (2, 6),

wherein said supply information management system (710a) comprises

5 a supplier-side reading device (711a) for reading a serial number stored in advance in an IC chip of a diaper product (1 to 4, 6) provided with an IC tag (5) where information can be read out from said IC chip through an antenna for radio communication;

a product database storage part (724) for storing a product database (91) which is a set of data elements each associating said serial number of said diaper product (1 to 4, 6) with process information on a predetermined process of at least one of manufacturing, inspecting, storing, shipping and selling on supply of said diaper product (1 to 4, 6),
10 which is performed for said diaper product (1 to 4, 6);

a product database updating part (723) for, when one process for said diaper product (1 to 4, 6) is performed, specifying a data element in said product database (91), which includes a serial number read out by said supplier-side reading device (711a), and adding process information on said process to said data element;

15 a product information obtaining part (726) for specifying a data element in said product database (91), which includes a serial number transmitted from said usage information management system (810) to acquire a value of a predetermined data item in said data element as product information; and

a product information transmitting part (727) for transmitting product
20 information acquired by said product information obtaining part (726) to said usage information management system (810) through said communication network (911), and

said usage information management system (810) comprises

a consumer-side reading device (811) for reading said serial number stored in said IC chip of said diaper product (2, 6) in advance;

25 a serial number transmitting part (821) for transmitting a serial number read out

by said consumer-side reading device (811) to said supply information management system (710a) through said communication network (911); and

a product information output part (822) for receiving and outputting product information transmitted by said product information transmitting part (727) of said supply
5 information management system (710a).

28. The diaper product management system (910a) according to claim 27, wherein

said usage information management system (810a) further comprises
10 a product model type transmitting part (823) for, when one diaper product (2, 6) is put on a wearer, transmitting a product model type indicating a kind of said diaper product (2, 6), which is stored in an IC chip of said diaper product (2, 6) in advance and read out by said consumer-side reading device (811), to said supply information management system (710b), and

15 said supply information management system (710b) further comprises
a stock database storage part (728) for storing a stock database (97) which is a set of data elements associating a plurality of product model types of diaper products (2, 6) with respective stock numbers of diaper products (2, 6) on said consumer side corresponding to said plurality of product model types; and

20 a stock database updating part (729) for specifying a data element in said stock database (97), which includes one product model type transmitted from said product model type transmitting part (823), and subtracting one from a stock number in said data element.